REMARKS

STATUS OF THE CLAIMS

Claims 3-19 have been pending in the application.

Claims 3-15 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (U.S. Patent No. 5,555,362) in view of Lee (U.S. Patent No. 6,160,913), Ohsawa (U.S. Patent No. 4,876,610), and Wada (U.S. Patent No. 5,949,922).

Claims 16-17 are rejected under 35 USC 103(a) as being unpatentable over Yamashita, Lee, Ohsawa, Wada, and Graham (US Patent No. 5,222,154).

Claims 3 and 18 are amended.

Claim 19 has been cancelled without disclaimer or prejudice.

According to the foregoing, claim 19 is cancelled, the claims are amended, and, thus, the pending claims remain for reconsideration, which is respectfully requested.

No new matter has been added.

REJECTION

Lee is newly cited, and, thus, newly relied upon.

The Office Action page 8 relies on Lee FIG. 4 and column 7, line 12 to column 8, line 12 to meet the claimed present invention's eliminating an erroneously recognized halftone dot. However, the according to the foregoing, independent claims 3 and 18 are amended to further emphasize the patentably distinguishing features of the present invention. The present application P.10 line 9 to P.12 line 5 and Figs. 2, 3 support the claim amendments. In contrast to a combination of Yamashita, Lee, Ohsawa and Wada, the claimed present invention provides a process of eliminating erroneously recognized halftone dots in which a number of centers-of-gravity of halftone dots in each of a plurality of masks is counted. If the number of the centers-of-gravity of the halftone dots obtained per mask is equal to or smaller than a given threshold value, the halftone dots in the corresponding mask are considered as those of noise or dust on the image resulting from erroneous recognition. In addition, a shape and size of the masks that serve as search areas are determined based upon input resolution. Thus, the eliminating erroneously recognized halftone dots can be speeded up.

The function of eliminating an erroneously recognized halftone dot of claims 3 and 18 (as amended) differs essentially from the halftone pixel reclassification of Lee's FIGS. 4 and 5, because Lee's operations 402, 406 and 512, 514, as acknowledged by the Examiner in the Office Action pages 8, 2nd to last line and page 10, line 20+, uses "a halftone dot density in a given area (column 7, lines 51-55 of Lee)," but Lee fails to disclose or suggest to one skilled in the art to use "***centers-of-gravity of the recognized halftone dots***" to eliminate erroneously recognized halftone dots. The Office Action page 10 provides "Yamashita in view of Lee does not disclose expressly that said list is a list of halftone dot information comprising center-of-gravity information about centers-of-gravity of halftone does as information about each recognized halftone dot." So the Office Action page 12 relies on Wada figure 12(S5) and column 15, lines 16-20. However, Wada discusses in figure 12(S5) to calculate center-of-gravity of a pixel for position error management, but fails to disclose or suggest to one skilled in the art to calculate center-of-gravity to eliminate erroneously recognized halftone dots.

Further, the Office Action page 10 provides that Ohsawa discusses calculating halftone dot density defined by a central pixel and surrounding pixels (column 4, lines 39-42 of Ohsawa). But Ohsawa is silent on using "***centers-of-gravity of the recognized halftone dots***" to eliminate erroneously recognized halftone dots.

Further, the Office Action page 3 provides that a combination of Yamashita's halftone dots and Ohsawa's halftone dot density information "is very similar, but not precisely the same, information as center-of-gravity information." Then, the Examiner essentially provides that replacing the halftone dot density information with Wada's "center-of-gravity" information would be obvious, because it produces better results. However, Wada fails to support any motivation or suggestion to one skilled in the art to use the center-of-gravity information for purposes of eliminating erroneously recognized halftone dots, since Wada is silent on elimination of possible erroneous halftone dots. Wada column 14, lines 34-42, which is relied upon for motivation, discusses reducing effects of noise for purposes of position error management of recognized lines, but recognized lines can differ from recognized halftone dots. However, the claimed present invention uses the center-of-gravity information to eliminate possible erroneous halftone dots, which provides a new non-obvious effect of speeding up such elimination of erroneously recognized halftone dots.

A prima facie case of obviousness of the claimed present invention's "***determining a high possibility that noise and/or dust on the binary image may be erroneously***

recognized as halftone dots, if the number of the centers-of-gravity of the halftone dots is equal to or smaller than a threshold value," cannot be established based upon Yamashita, Lee, Ohsawa, and Wada, since Wada is silent on recognized halftone dot elimination based upon center-of-gravity information, to provide the effect of speeding up such elimination of erroneous halftone dots. Further, all of the references Yamashita, Lee, Ohsawa and Wada fail to disclose or suggest to one skilled in the art the claimed present invention's "***determining a shape and a size of masks to serve as search areas based upon an input resolution of the binary image***." Accordingly, Lee fails to disclose or suggest to one skilled in the art to be combined with Yamashita, Ohsawa and Wada and to modify such a combined system to achieve the claimed present invention's:

> ...
>
> a halftone dot image area map creating unit controlling the image processing apparatus to search for a halftone dot image area in the multi-valued image according to a process, comprising:
>
> recognizing halftone dots in the multi-valued image,
>
> generating a list of halftone dot information comprising ***center-of-gravity information about centers of gravity of the halftone dots***, as information about each recognized halftone dot,
>
> ***plotting the centers-of-gravity of the recognized halftone dots*** in a plot area ensured in advance,
>
> ***determining a shape and a size of masks to serve as search areas based upon an input resolution of the binary image***,
>
> ***arranging the masks to include a center-of-gravity of a target halftone dot***,
>
> ***counting a number of centers-of-gravity of the halftone dots for each of the arranged masks***,
>
> ***determining a high possibility that noise and/or dust on the binary image has been erroneously recognized as halftone dots, if the number of the centers-of-gravity of the halftone dots is equal to or smaller than a threshold value***,
>
> ***eliminating information about the centers-of-gravity of erroneously recognized halftone dots from the list and the plot area***, and
>
> ~~eliminating an erroneously recognized halftone dot according to a process, comprising:~~

~~calculating a halftone dot density in a given area by referring to the center-of-gravity information in the list of halftone dot information, and~~

~~deleting corresponding halftone dot information from the halftone dot information list, when the halftone dot density does not meet a given condition, and~~

creating a halftone dot image area map according to the halftone dot information list from which the erroneously recognized halftone dot information has been eliminated;

... (e.g., independent claim 3, emphasis added)

Consequently, the invention set forth in claims 3 and 18 is not obvious from the combination of the references of Yamashita, Lee, Ohsawa, Wada and Graham.

Dependent claims recite patentably distinguishing features of their own or are at least patentably distinguishing due to their dependencies from independent claim 3.

It is believed that in view of the claim amendments and remarks, the pending claims are allowable over the relied upon references.

CONCLUSION

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,
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